TITLE

EVALUASI POTENSI BEBERAPA LIMBAH INDUSTRI PERTANIAN LOKAL SEBAGAI SUMBER BAHAN PAKAN RUMINANSIA BERDASARKAN KUALITAS NILAI NUTRISI, KECERNAAN IN VITRO DAN PRODUKSI GAS METANA

ABSTRACT

RINGKASAN
SAID MIRZA PRATAMA. Evaluasi potensi beberapa limbah industri pertanian lokal sebagai sumber bahan pakan ruminansia berdasarkan kualitas nilai nutrisi, kecernaan in vitro dan produksi gas metana. SAMADI, SITTI WAJIZAH.
Ternak merupakan sumber protein hewani perlu ditingkatkan produksinya dengan biaya minimal dan memanfaatkan limbah industri pertanian sebagai sumber bahan pakan. Tujuan dari penelitian ini adalah mengevaluasi limbah industri pertanian sebagai sumber bahan pakan lokal ruminansia yang potensial di Aceh berdasarkan komposisi kimia, kecernaan in vitro dan produksi gas metana. Delapan sumber bahan pakan yang berasal dari limbah industri pertanian (ampas sagu, bungkil kelapa, ampas kecap, ampas kopi, kulit coklat, gerusan sagu, tongkol jagung dan dedak) dari tiga lokasi berbeda di Aceh digunakan dalam penelitian ini. Sampel yang akan dianalisa (kandungan nutrisi, fermentasi rumen secara in vitro dan produksi gas metana) terlebih dahulu dikeringkan pada suhu 60o C selama 24 jam dan diigiling dengan ukuran 1 mm. Inkubasi dilakukan pada suhu 39oC selama 48 jam dalam water bath terdiri dari 3 ulangan. Data in vitro dianalisa secara statistic dengan mnggunakan SPSS. Perbedaan antar perlakukan dinyatakan pada (Pâ‰¤0.05) dilanjutkan uji jarak berganda Duncan. Dari hasil analisa data didapatkan bahwa produksi limbah pertanian dari bungkil kelapa, limbah kecap, limbah kopi, limbah coklat dan dedak sebagai sumber protein, sementara limbah sagu, gerusan sagu dan tongkol jagung dapat digunakan sebagai sumber energi. Komposisi NDICP dan ADICP relatif tinggi pada limbah sagu, gerusan sagu dan dedak, namun relatif rendah pada limbah coklat dan tongkol jagung. Nilai pH pada semua bahan limbah pakan dari hasil fermentasi berada dalam kisaran normal. Kecernaan bahan kering dan kecernaan bahan organik setiap bahan pakan berbeda nyata (Pâ‰¤0.05) pada setiap bahan pakan limbah industri pertanian yang tertinggi pada pada ampas sagu dan yang terendah pada limbah kopi. Konsentrasi NH3 dan nilai Volatyle Fatty Acid (VFA) semua bahan pakan pada kisaran normal. Emisi metana dari limbah industri pertanian pada jam inkubasi 12, 24 dan 48 jam tidak berbeda nyata (Pâ‰¤0.05), tertinggi pada dedak padi. Dari hasil penelitian dapat disimpulkan bahwa limbah industri pertanian lokal di Aceh dapat digunakan sebagai sumber bahan pakan ternak ruminansia baik sumber protein maupun sumber energi. Namun demikan, bahan pakan yang tinggi kadar serat dan rendah daya cerna perlu adanya perlakuan fisik, kimia dan biologi untuk meningkatkan kualitas bahan pakan dari limbah.
Kata kunci : Limbah industri pertanian, ruminansia, pakan dan in vitro.

SUMMARY
SAID MIRZA PRATAMA. Evaluation of some agro-industrial by products as potential local feed for ruminant animals ; chemical composition, in vitro rumen fermentation dan methane gas production. SAMADI, SITTI WAJIZAH.
Animals are considered as source of protein should be improved their productivity with the minimum cost production. Agro-industrial by products have been used as animal feed to reduce feed cost. The purpose of this study is to evaluate agro-industrial by product in Aceh as potential local feed for ruminant animals based on chemical composition, in vitro rumen fermentation and methane gas production. There were eight sources of agro-industrial by products (sago residues, coconut meal, soybean-ketchup by product, coffee pulp, cacao pod, sago tree, corncob, and rice brand) which were collected from 3 different locations in Aceh. All agro-industrial by product samples were dried at 60oC for 24 h and ground to pass a 1 mm sieve. Grounded samples were analyzed to determine chemical composition, fiber fractions and in vitro rumen fermentation. Incubation was conducted at temperature 39oC for 48 h in water bath with three replicates. Data for in vitro rumen fermentation were statically calculated by using SPSS differences between treatments were stated (Pâ‰¤0.05) by using Duncan Multiple Range Test (DMRT). The results indicated that agro industrial by product from coconut meal, ketchup residues, coffee by product, cacao by product, and rice brand can be used as source of protein and industrial by product from sago by product, sago tree and corncob can be used as source of energy. Neutral detergent insoluble CP (NDICP) and Acid detergent insoluble CP (ADICP) were relatively high for sago by product, sago tree and rice brand but relatively low for cacao by product and corncob. The value of incubated pH for most feed samples was in the normal range. In vitro dry matter digestibility (IVDMD) and in vitro organic matter digestibility (IVOMD) were significantly difference (Pâ‰¤0.05) each agro-industrial by products with the highest for sago and the lowest for coffee by product. NH3 concentrate dan Volatyle Fatty Acid value for most feed sample was in the normal range. All feed samples were not significantly difference at 12, 24 and 48 h (Pâ‰¤0.05), the highest for rice bran. In conclusion, agro-industrial by products had a potential feed for ruminant animals both as protein and energy sources. However, feed ingredients with high fiber content and low degradability, further treatments such as physical, chemical and biological treatments were required to improve the feed quality.

Keywords : Agro-industrial by products, ruminant, feed, and in vitro.